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ABSTRACT

The learning of decision-making (DM) skills and appropriate attitudes is an important objective of career education. This study provides an empirical test of theoretical links between aspects of DM styles and vocational maturity (VM) in adolescence. Approximately 260 Australian students in grades ten and twelve answered questionnaires measuring personality variables; rational, intuitive, and dependent DM styles; and aspects of VM including planning orientation, information-seeking, concern with choice, occupational information, and application of DM principles. Most of the relationships, in the form of partial correlations controlling for verbal ability, expected between DM styles and VM or personality variables were found. Among the relationships expected and supported partially by the study were the following: (1) that individuals with high career maturities would tend to use active rational forms of decision making in most contexts; (2) that individuals with high internal locus of control would use more active rational forms of DM styles; and (3) that students with high achievement motivation would use more active rational forms of decision making. As a result of the study, it was suggested that training in decision making would be a valuable activity to include in the career education curriculum; and that students should be trained in a number of decision-making styles and should practice these skills in various contexts. (Author/KC)

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DECISION-MAKING STYLE AND VOCATIONAL MATURITY AMONG ADOLESCENTS

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Abstract

The learning of decision-making (DM) skills and appropriate attitudes is an important objective of career education. This study provides an empirical test of theoretical links between aspects of DM styles and vocational maturity (VM) in adolescence. Students in grades ten and twelve answered questionnaires measuring personality variables, Rational, Intuitive and Dependent DM styles, and aspects of VM including planning orientation, information-seeking, concern with choice, occupational information, and application of DM principles. Most of the relationships, in the form of partial correlations controlling for verbal ability, expected between DM styles and VM or personality variables were found.

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Objective

The objective of this study was to investigate relationships between decision-making styles and aspects of vocational maturity in adolescents.

Framework

Among the objectives of career education programs, one that is virtually universal is that students should acquire both the preparedness and ability to make career-related decisions "wisely." Students who possess this preparedness and ability have been described, for example by Super (1974), as being more "vocationally mature" (more advanced in their career development) than other students. Relevant to the notion of preparedness are aspects of vocational maturity (VM) such as awareness of the need for planning, acceptance of responsibility for choice, and awareness of the need to collect appropriate information. Relevant to the ability element are aspects such as knowing how to collect the required information in a systematic, efficient way, and having collected it, knowing how to use it in making decisions.

"Wise" career-related decisions are presumed to be those made on the basis of well-considered information on a variety of factors, such as an individual's abilities, preferences and goals and situational factors such as job characteristics and labor market restrictions. The predominating view of career decision-making (CDM) as a rational process is summarized by Harren (1979), who describes it as a psychological process involving organizing information, deliberating among alternatives and making a commitment to a course of action. Harren comments that existing models of CDM fail to allow for the way in which the decision-making process varies depending on the type of decision involved and the personality and maturity of the decision-maker. He then outlines a model of CDM in which four interrelated parameters are postulated: Process (stages through which the decision-maker progresses), Characteristics (of the decision-maker), Tasks (relevant career development tasks), and Conditions (situational factors). Of particular interest to this study is the combination of Characteristics and

Conditions parameters which allows for a range of DM styles to be used by individuals differing in personality and maturity when confronting differing DM tasks involving different time perspectives.

Evidence that individuals varied their decision making styles had been found by Arroba (1977) when she examined styles of decision making by individuals in a wide range of situations. She was able to cluster decisions into six styles, compliant, no thought, emotional, intuitive, logical, and hesitant, with a seemingly underlying passive-active continuum. Individuals were found to vary their style of decision making depending on situational factors such as the importance of the decision and the perceived degree of control of the outcomes.

The present study set out to investigate some of the relationships between career maturity, decision making styles and situational factors. Among the relationships expected to be found were:

(a) that individuals with high career maturities would tend to use active rational forms of decision making in most contexts. Students who use rational active DM styles were characterised by Harren as having positive self-concepts, the ability to make decisions, a knowledge of the factors likely to influence the outcomes and less need to depend on others. All of these factors are related to high career maturity.

(b) that individuals with high internal locus of control would use more active rational forms of DM styles. If individuals are convinced that they are able to control their destinies then it would seem logical for them to use non-dependent styles of decision making.

(c) that individuals with high achievement motivation would use more active rational forms of decision making. It would seem likely that the pattern of strategies adopted in the school learning context would influence their career decision making styles which would lead achievement motivated students to use more active rational forms of career decision making strategies.

Data Sources

Students from 16 classes in 8 Melbourne secondary schools who had completed the CDI during 1979 in two other projects participated in this study by writing the modified DMS about 12 months later. The time delay was not necessary to the study; indeed, stronger relationships would have been expected had the data been collected at the same time. The attraction of using subjects from the earlier studies was that it minimized interference with school routines, and also that data on additional variables such as locus of control, achievement motivation, verbal ability, father's occupation, and various aspirations were readily available.

Altogether about 100 students in grade twelve and 160 students in grade ten in 1980 were involved, from groups of 200 students sampled in grades nine and eleven in 1979. In Australia most students remain at school to grade ten, but only about 35 percent stay to grade twelve; hence, the grade twelve group would be expected to differ somewhat in composition from the younger group.

The sample of students for the first project was selected by a two-stage cluster sampling technique. Fifty secondary schools were randomly drawn from the population of all Australian secondary schools with each school having a probability of selection according to its size. Within these schools 27 students were selected randomly from each of grades eleven and nine. The results obtained from these students were used to evaluate national norms for the CDI (Australian Version).

The same sampling technique was used to select students for the second project but the population was all Melbourne secondary schools. Forty schools took part in the second project which was a dissertation study to determine relationships between career maturity and the career curriculum practices of the school.

The eight Melbourne metropolitan schools that took part in the 1980 study were a combined subset of the earlier two projects and the students could not be considered to be a true random sample. However, there is no reason to suspect that these students are not representative of Australian adolescents and the authors consider the study findings could be generalized to all Australian adolescents. The generalization of the findings to American adolescents is less sure and would require further research.

Instrumentation

The VM variables were assessed by means of an adaptation (Form IV) of Super, et. al.'s Career Development Inventory (CDI). The CDI contains 88 items grouped into an "attitudinal" dimension (40 items) and a "cognitive" dimension (48 items). These dimensions are second-order factors, which are made up of five and three first-order factors, respectively. The internal consistency reliabilities (α) of the first-order dimensions range from 0.64 to 0.84. The attitudinal dimensions are named Extent of Planning, Concern with Choice, Occupational Information (self-rated), Awareness of Resources, and Use of Resources. The cognitive dimensions are Knowledge of Career Development, Knowledge of the World of Work, and Knowledge and Application of Decision-making Principles. Tables 1 and 2 list the reliabilities, factor loadings, and intercorrelations associated with the CDI (Australian Version).

Together with his model of CDM, Harren has also developed a 30-item measure of Decision-making Styles. The styles represented are:

(a) Rational: characterized by the ability to recognize consequences of earlier decisions for later decisions, and to feel that one is the architect of one's own future

(b) Intuitive: characterized by little anticipation of the future, information seeking, or logical weighting of factors--more likely to be based on fantasy, emotions, or present feelings--often involving a feeling of "rightness" or inevitability

(c) Dependent: characterized by a denial of personal responsibility, feelings of passivity and compliance.

Despite his claim that DM models need to take context into account, Harren's survey of Decision-making Styles (DMS) is worded very generally. For this study Harren's DMS was modified so that the items assessing the three styles were presented in two contexts: (1) making decisions about what to do during the school holidays, and (2) making decisions about a job, career, or higher education. Internal consistency reliabilities for the style categories by context ranged from 0.64 to 0.82. Tables 3 and 4 list the reliabilities, discrimination indices, and the intercorrelations for the CDM scales.

Motivational patterns and learning strategies were assessed by a questionnaire developed by Biggs (1981). In an earlier study he had found a relationship between why students were studying (their motive) and the specific learning strategy endorsed by them as being the most appropriate for their purposes. The pattern he found is summarized below.

DIMENSION	MOTIVE ◄——► STRATEGY	
UTILIZING	Instrumental: main purpose is to gain a qualification with pass only aspirations and corresponding fear of failure.	Reproducing: limit target to bare essentials and reproduce through rote learning.
INTERNALIZING	Intrinsic: study to actualize interest and competence in particular academic subjects.	Meaningful: read widely, interrelate with previous relevant knowledge.
ACHIEVING	Achievement: obtain highest grades whether or not material is interesting.	Organizing: follow up all suggested readings, schedule time, behave as a model student.

The questionnaire consists of 36 statements to which the students respond on a 5 point scale as to whether the statement is "almost always true" to "only rarely true." The questionnaire yields three motive and three strategy subscores whose alpha reliabilities ranged from 0.43 to 0.70.

Word knowledge WK was assessed by the 40 item Word Knowledge Test, 14-year version, developed for the IEA studies (Thorndike, 1973). Words are presented in pairs and the students respond by marking whether the words in a pair mean nearly the same or nearly the opposite of each other. Results from previous Australian studies have shown that:

(a) the test is reliable and unlikely to have a ceiling effect for year 11 students.

(b) it essentially reflects verbal ability and is related to academic ability.

(c) a low positive but significant correlation exists (averaging 0.02) between WK and the various dimensions of the CDI (Australian Version).

Information on various student characteristics such as sex, date of birth, and occupational aspirations were collected by means of a General Information Questionnaire. Included in this questionnaire were seven items designed to assess the degree of belief in internality of control (LC). Students responded on a four point scale from "strongly agree" to "strongly disagree." The internal reliability, alpha, of the LC scale was of the order of 0.75.

Results

The relationships between variable pairs were assessed by means of partial correlation coefficients, with verbal ability held constant. Most of the significant partial r's were in the range of 0.21 to 0.35 (significant at the 0.01 level or better). Separate analyses by sex yielded about three times as many significant relationships for boys than for girls, and separate analyses by grade level yielded about 50 percent more significant relationships for the grade twelve group than for the grade ten group. In neither of these cases was the difference an artifact of group size, as there were about equal numbers of boys and girls and the grade twelve group was considerably smaller than the grade ten group. Table 5 lists the partial correlations between the DMS scales and the other variables for the total group.

Expectations concerning significant relationships between DMS variables and variables such as locus of control, achievement motivation, and attitudinal aspects of VM, all with verbal ability controlled, were borne out by the data. The Career: Rational scale was negatively related to externality of control and

positively related to achievement motivation, the tendency to use organized strategies in seeking information, and the VM attitude dimensions reflecting a planful orientation toward career, concern with choice, world-of-work information. The Holiday: Rational scale tended to be related to the same variables in the same direction, but to a lesser extent. Where the Intuitive or Dependent DM scales were related to the personality or VM variables the correlations were negative except for externality of control, where the relationship, as expected, was positive (externality of control indicates a tendency to believe that other people or events control what happens to one). The negative correlations for other variables were also as expected, based on Harren's description of the characteristics associated with the DM styles.

The results were less clear in the case of the cognitive aspects of VM. It was expected that a preference for a rational DM style, particularly in the Career context, would be quite highly related to the VM scale concerning application of decision-making principles (DMP), but the only group in which a significant value was found was the boys' group, where the partial r was 0.21. In the girs' group a negative relationship between the DMP scale and the Holiday: Dependent scale was found, and in the boys' group both the Intuitive scales were negatively related to the Knowledge of the World of Work scale of the CDI, as expected from the description of characteristics associated with the Intuitive style provided by Harren.

Other findings of interest were that a higher level of (self-reported) rationality was indicated for Career decisions than for Holiday decisions, as anticipated because of the long-term importance of the former compared with the latter (though perhaps these findings indicate no more than "questionnaire-wise" respondents). We had also expected that the grade twelve group would score higher on the Career: Rational scale than the younger group because of the more imminent need to make such decisions; however, there was no difference between the grade groups on any of the DMS dimensions.

Significance of the Study

To date very few empirical studies of the decison-making process in the context of adolescent career development have been reported, despite the role that the objective of learning decision-making skills and appropriate attitudes plays in many career education programs. That the topic is important is borne out by the many theoretical or discussion papers in the literature. This study initially linked theoretical aspects of Harren's model of CDM with aspects of Super's formulations of VM in adolescence, and attempted to test these links

empirically. Though not entirely successful in that some of the expected relationships were not found, these were in the minority, and the study should point the way to further useful research. On the positive side it is encouraging that several theoretical links between different models were able to be supported.

In terms of the "practical" significance of the study to career counselors and career education materials developers the following suggestions are offered:

(a) The study supports the proposition that decision-making competence and career maturity are interrelated. If this is true, then training in decision making would be a valuable activity to include in the career curriculum.

(b) The study lends support to the proposition that students should be trained in a number of decision-making styles and should practice these skills in a number of contexts.

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Table 1

STATISTICS RELATED TO CDI (AUSTRALIAN VERSION)

	SCALE	α RELIABILITY	FACTOR LOADINGS I	II
(i)	Extent of planning	0.80	0.81	0.19
(ii)	Concern with choice	0.64	0.67	0.17
(iii)	Occupations information (S.R.)	0.84	0.76	0.01
(iv)	Awareness of resources	0.68	0.57	0.30
(v)	Use of resources	0.76	0.78	-0.10
(vi)	Knowledge of career development	0.71	0.10	0.87
(vii)	World of work information	0.74	0.09	0.84
(viii)	Knowledge of decision making principles	0.74	0.11	0.87
	Eigen value		3.15	1.87
	% variance		39	23

Table 2

INTERCORRELATIONS* OF CDI (AUSTRALIAN VERSION) SCALES

	SCALE	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)
(i)	Extent of planning		50	54	39	52	23	24	26
(ii)	Concern with choice			40	31	33	21	17	20
(iii)	Occupational information (SR)				27	46	09	14	10
(iv)	Awareness of resources					39	27	22	29
(v)	Use of Resources						05	01	03
(vi)	Knowledge of career development							63	67
(vii)	World of Work information								61
(viii)	Knowledge of decision making principles								

* Decimal points omitted.

Table 3

STATISTICS RELATED TO DMS SCALES

SCALE		α RELIABILITY	DISCRIMINATION INDICES*	
			Average	Range
Holiday:	Rational	0.72	0.41	0.30 to 0.52
	Intuitive	0.61	0.32	0.11 to 0.46
	Dependent	0.75	0.45	0.27 to 0.60
Work:	Rational	0.82	0.51	0.40 to 0.63
	Intuitive	0.63	0.30	0.12 to 0.42
	Dependent	0.78	0.45	0.28 to 0.63
Total:	Rational	0.83	0.42	0.27 to 0.55
	Intuitive	0.75	0.32	0.15 to 0.51
	Dependent	0.85	0.46	0.31 to 0.59

* Item - remainder correlation.

Table 4

INTERCORRELATIONS* OF DMS SCALES

		(i)	(ii)	(iii)	(iv)	(v)	(vi)
(i)	Holiday: Rational		-12	16	39	-	-
(ii)	Holiday: Intuitive			21	-	47	20
(iii)	Holiday: Dependent				13	21	61
(iv)	Work: Rational					-11	11
(v)	Work: Intuitive						24
(vi)	Work: Dependent						

* Decimal points omitted.

Table 5

PARTIAL CORRELATIONS FOR TOTAL GROUP BETWEEN DMS SCALES AND OTHER VARIABLES ADJUSTED FOR WORD KNOWLEDGE

	Zero Order with WK	H. Rat.	H. Int.	H. Dep.	W. Rat.	W. Int.	W. Dep.
CDI							
Planning	0.28***	0.25***			0.23***		-0.12*
Choosing	0.14*	0.23***			0.33***	-0.15**	-0.09
Occup. Info	0.08	0.18*			0.19*		-0.23**
Res. Awar.	-0.05	0.18*		0.15			0.18*
Use of Res.	0.00				0.09	0.09	
C. Dv. Info	0.40***	0.40***			0.14**		
W. Wr. Info	0.55***		-0.10			-0.13*	
D-M Principles	0.51***		-0.09			-0.19	
M. Inst.	-0.16*			0.19*			
M. Int.	-0.22**	0.22**	0.19	0.24**	0.28**		
M. Ach.	-0.19*	0.31***		0.24**	0.41***		0.18*
S. Rep.	-0.16*		0.24**				
S. Mng.	-0.26**	0.32***		0.23**	0.38***	0.18*	
S. Org.	-0.27**	0.20*			0.34***		0.20*
L.C. ext.	-0.25**				-0.20*		
Zero Order with WK		-0.05	0.07	-0.13*			-0.10*

* Sig p 0.05
** Sig p 0.01
*** Sig p 0.001